

What is claimed is:

- 1 1. An image processing apparatus comprising:
  - 2 a hardware resource that includes at least one of an image
  - 3 forming unit, a read unit, and a display unit;
  - 4 a first control program;
  - 5 a second control program; and
  - 6 an application program, wherein
  - 7 the hardware resource and the programs are arranged in
  - 8 such a hierarchical architecture that the first control program
  - 9 is superordinate to the hardware resource, and the application
  - 10 program and the second control program are superordinate to the
  - 11 first control program,
  - 12 the first control program includes a first API (application
  - 13 program interface) for receiving a first request relating to
  - 14 image processing from the second control program and a second
  - 15 request relating to image processing from the application program,
  - 16 and controls, on receiving either of the first and second requests,
  - 17 the hardware resource to perform image processing based on the
  - 18 received request, and
  - 19 the second control program includes a second API publicly
  - 20 released in advance for receiving a third request relating to
  - 21 image processing from an external source, converts the received
  - 22 third request to a command supported by the first API, and passes
  - 23 the command as the first request to the first control program.
- 1 2. The image processing apparatus according to Claim 1, wherein

2       the first control program passes the received first request  
3 to the application program if the first request is directed to  
4 the application program.

1 3. The image processing apparatus according to Claim 1, wherein  
2       the third request is data expressed in an XML.

1 4. The image processing apparatus according to Claim 3, wherein  
2       the second control program further includes:  
3           a first converting unit for extracting  
4 predetermined information from the received XML data; and  
5           a second converting unit for converting the  
6 extracted information to the command supported by the first API.

1 5. The image processing apparatus according to Claim 1, wherein  
2       the hardware resource includes the image forming unit,  
3       the requests relate to execution of a print job, and  
4       on receiving a request relating to execution of the print  
5 job, the first control program controls the image forming unit  
6 to perform the print job.

1 6. The image processing apparatus according to Claim 1, wherein  
2       the hardware resource includes the read unit,  
3       the requests relate to execution of a scan job, and  
4       on receiving a request relating to execution of the scan  
5 job, the first control program controls the read unit to perform  
6 the scan job.

1 7. An image processing apparatus comprising:  
2 a hardware resource including at least one of an image  
3 forming unit, a read unit, and a display unit;  
4 a first control program;  
5 a second control program; and  
6 an application program, wherein  
7 the hardware resource and the programs are arranged in  
8 a hierarchical architecture in the stated order,  
9 the first control program includes a first API for  
10 receiving a first request relating to image processing from the  
11 second control program, and controls the hardware resource to  
12 perform image processing based on the received first request,  
13 and  
14 the second control program includes a second API that is  
15 publicly released in advance for receiving a second request  
16 relating to image processing from an external source and a third  
17 request relating to image processing from the application program,  
18 converts, on receiving either of the second and third requests,  
19 the received request to a command supported by the first API,  
20 and passes the command as the first request to the first control  
21 program.

1 8. The image processing apparatus according to Claim 7, wherein  
2 the second control program passes the received second  
3 request to the application program if the second request is  
4 directed to the application program.

1 9. The image processing apparatus according to Claim 7, wherein  
2 the second request is data expressed in an XML.

1 10. The image processing apparatus according to Claim 9, wherein  
2 the second control program further includes:

3 a first converting unit for extracting  
4 predetermined information from the received XML data; and

5 a second converting unit for converting the  
6 extracted information to the command supported by the first API.

1 11. The image processing apparatus according to Claim 7, wherein  
2 the hardware resource includes the image forming unit,  
3 the requests relate to execution of a print job, and  
4 on receiving a request relating to execution of the print  
5 job, the first control program controls the image forming unit  
6 to perform the print job.

1 12. The image processing apparatus according to Claim 7, wherein  
2 the hardware resource includes the read unit,  
3 the requests relate to execution of a scan job, and  
4 on receiving a request relating to execution of the scan  
5 job, the first control program controls the read unit to perform  
6 the scan job.

1 13. An image processing apparatus, comprising:  
2 a hardware resource including at least one of an image  
3 forming unit, a read unit, and a display unit;

4           a first control program;  
5           a second control program; and  
6           an application program, wherein  
7   the first control program is arranged between the hardware  
8   resource and the application program and the second control  
9   program is arranged superordinate to the application program  
10           in a hierarchical architecture,  
11       the first control program includes a first API for  
12   receiving a first request relating to image processing from the  
13   second control program and a second request relating to image  
14   processing from the application program, and controls, on  
15   receiving either of the first and second requests, the hardware  
16   resource to perform image processing based on the received  
17   request,  
18       the second control program includes a second API that is  
19   publicly released in advance for receiving a third request  
20   relating to image processing from an external source, converts  
21   the received third request to a command supported by the first  
22   API, and passes the command to an appropriate one of the first  
23   control program and the application program depending on the  
24   requested processing, the command passed to the first control  
25   program serving as the first request, and  
26       on receiving the command from the second control program,  
27   the application program passes to the first control program,  
28   a request for performing the processing based on the received  
29   command, the request passed to the first control program serving  
30   as the second request.

1 14. The image processing apparatus according to Claim 13, wherein  
2 the third request is data expressed in an XML.

1 15. The image processing apparatus according to Claim 14, wherein  
2 the second control program further includes:

3 a first converting unit for extracting  
4 predetermined information from the received XML data; and  
5 a second converting unit for converting the  
6 extracted information to the command supported by the first API.

1 16. The image processing apparatus according to Claim 13, wherein  
2 the hardware resource includes the image forming unit,  
3 the requests relate to execution of a print job, and  
4 on receiving a request relating to execution of the print  
5 job, the first control program controls the image forming unit  
6 to perform the print job.

1 17. The image processing apparatus according to Claim 13, wherein  
2 the hardware resource includes the read unit,  
3 the requests relate to execution of a scan job, and  
4 on receiving a request relating to execution of the scan  
5 job, the first control program controls the read unit to perform  
6 the scan job.